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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,571

09/23/2003

Mark Alan Patterson

BIROF 104

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07/25/2006

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EXAMINER

PIPALA, EDWARD J

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/668,571	<b>Applicant(s)</b> PATTERSON, MARK ALAN	
	<b>Examiner</b> Edward Pipala	<b>Art Unit</b> 3663	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 5/4/06.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
     4a) Of the above claim(s) 3 and 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office action is in response to Applicant's amendment and remarks filed 5/4/06. Claims 1, 2, 4 and 5 are presently pending, claims 3 and 6-8 have previously been withdrawn from consideration.

#### ***Claim Rejections - 35 USC § 112***

2. The previous rejection of claims 1, 2, 4, and 5 under 35 USC 112 1<sup>st</sup> paragraph has been withdrawn in view of Applicant's remarks, submission of accelerometer prior art documentation, and admissions filed 5/4/06.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (6,073,069) in view of Avitan et al. (4,942,529).

Independent claim 1 recites a lift truck load stabilization system for controlling the lift mast (and cargo support) tilt angle relative to the lift truck and a tilt actuator for adjusting the tilt mast angle, comprising: a) an acceleration sensor mounted to the lift

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truck for sensing an angular direction of a resultant of forces of gravitational acceleration and vehicle travel acceleration; and b) a negative feedback control system having acceleration feedback of the resultant, a reference for storing a value representative of the resultant when the lift truck is at rest and the cargo support is horizontal, and an output connected to the actuator for controllably varying the tilt mast angle so as to bring the sensed acceleration resultant into alignment with the stored reference value.

Kim discloses a device for stabilizing the mast tilt angle of a cargo carrying lift truck in response to electric signals from a sensor unit 21 and a control unit 22, such that the tilt angle of the mast of the forklift is stabilized with respect to the ground surface. In col. 2 lines 53 – 65, Kim teaches the use of a sensor unit 21 and a control unit 22 (comprising differential circuitry 22a) as means by which the electric signals from the electric sensor 21 are applied to the differential circuitry as part of a PID control system and used to automatically compensate and therefore stabilize tilting of the mast. In column 3 line 38, through col. 4 line 24, Kim further teaches automatic stabilization of the tilt of the equipment in particular when the surface tilt change is severe or when the driving speed is too fast for continuous stabilization. Kim does not particularly teach stabilizing the tilt angle of the forklift with respect to “a resultant of the forces of gravitational acceleration and vehicle travel acceleration”.

Avitan et al. discloses a lift truck control system in which factors such as load elevation, steering angle and load position are examples of operating parameters which are measured in either discrete values or as continuously varying values needed to

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establish the overall or composite center of gravity of the truck combined with its payload. The last few lines of the abstract of Avitan et al. clearly disclose a "learn" mode in which the ranges of various input signals are run through to develop a set of stored values which indicate allowable ranges for the inputs as well as offset or bias values which compensate for manufacturing tolerances occurring in the components in the system. In col. 7 line 43 through col. 8, line 56 Avitan et al. teaches setting a control limit on the operation of the lift truck dependent upon how much a resultant force vector differs from a reference composite value already stored in the control system. Furthermore, in col. 9, ll. 2-16 Avitan et al. particularly addresses the issue of truck acceleration (in addition to the previous mention of a weight vector  $W$ , and a vector resultant of the weight vector and a horizontal centrifugal force vector, col. 8, ll. 4-9), wherein acceleration is sensed as a change (increase or decrease) of velocity.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the resultant (vector) CG based control parameters of Avitan et al., within the mast tilt stabilizing system of Kim, in order to provide automatic tilt control within a certain range of operating parameters when considering terrain conditions as well as the speed and direction of travel of the vehicle so as to prevent a load from being dropped due to lift truck operation.

With respect to claim 2 which recites that the lift truck tilt actuator includes at least one double acting hydraulic cylinder connected to the negative feedback control system so as to tilt the mast angle with a smoothly continuous tilt angle range, please see at least figures 1A and 1B of Kim (the hydraulic cylinders), as well as col. 1, ll. 12-

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52, which teach stabilizing the tilt angle so as to keep the freight horizontal to the surface (ground) upon which the forklift/lift truck is traveling.

With respect to claims 4 and 5, which recite that the lift truck control system comprises a PID controller (claim 4) and that the hydraulic valve of the tilt actuator is electrically actuated, please see figure 2 of Kim which shows a block diagram of the electric control circuitry including the differential circuitry (22a) and CPU (22c) which together perform the PID control, as well as the lead lines to the solenoid valve drive unit (24) indicating that the system is electrically actuated.

Additionally, Applicant's statements of intended use (i.e., "for" sensing, "for" storing, "for" controllably varying, "whereby" or "wherein") clauses are essentially method limitations or statements of intended or desired use. Thus these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference(s). See *in re Pearson*, 181 USPQ 641; *In re Yanush*, 177 USPQ 705; *In re Finsterwalder*, 168 USPQ 530; *In re Casey*, 512 USPQ 235; *In re Otto*, 136 USPQ 458; *Ex Parte Masham*, 2 USPQ2d 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

### ***Response to Arguments***

4. Applicant's arguments filed 5/4/06 have been fully considered but they are not persuasive with respect to the prior art rejection under 35 USC 103.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an accelerometer) are not recited in the rejected claim(s).

In claim 1, lines 5-7, Applicant recites an "acceleration sensor" mounted to the lift truck *for* sensing an angular direction of the resultant forces of gravitational acceleration and vehicle travel acceleration. No where in the claims does Applicant actually recite the use of an "accelerometer", to which the bulk of Applicant's arguments with respect to the 103 rejection are directed. Applicant even seems to admit that a "weight hanging from a string" can be used to detect the resultant of gravity and vehicle acceleration (bottom of page 6 of 16), and would therefore also be able to perform the function of an "acceleration sensor".

As noted in the rejection above, Avitan et al. clearly teaches (in at least col. 7, line 43 through col. 9, line 16) basing the control system thereof on a resultant force vector which comprises a weight vector W which points downwardly and a horizontal

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centrifugal force vector, where the centrifugal force vector may additionally include forces generated by turning of the vehicle to the right or left. However, at the top of column 9 Avitan et al. explicitly addresses the fact that lift truck *acceleration* is used in determining and correcting what would be an otherwise unacceptable operational condition or state. The fact that Avitan et al's "acceleration sensor" is comprised of a system that determines unsafe acceleration from sensed vehicle speed is inconsequential to Applicant's arguments since the use of an accelerometer is not actually claimed, contrary to Applicant's arguments.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ejp

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER